

THE ZOOLOGIST

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NATURAL HISTORY BUREAU RECORDS, 1912.

(CORPORATION MUSEUM, TULLIE HOUSE, CARLISLE.)

By LINNÆUS E. HOPE & D. LOSH THORPE.

THE early days of 1912 were characterized by mild unseasonable weather. There was a short exception early in February, when 27° Fahr. was registered at Carlisle. This spell of frost brought quantities of wildfowl on to the Solway, and was responsible for the records of Smew on the Eden, and of Little Auk and Great Northern Diver on the Solway. The spring and summer which followed could scarcely be dignified by those terms ; the rainfall was the greatest and the sunshine the least within living memory.

There did not, however, appear to be much noticeable diminution in the numbers of our avian summer visitors, except perhaps the Swallow and House-Martin, which species are perhaps more readily noticed than those birds which frequent more rural areas.

We should like observers to pay particular attention to the approximate numbers of any particular species in their district, and record the numbers as near as possible. Such records may have great scientific value.

We are glad to be able to record the first definitely authenticated instance of the breeding of the Turtle-Dove in Cumberland, near Carlisle, in June, 1912. On June 20th the nest contained one young bird and one addled egg. After the nestling

flew, the addled egg and the nest were presented to the Carlisle Museum.

Some curious nesting-sites are again recorded, the strangest being that of a Thrush, which built its nest on the steam-pipe of the brake-gear beneath a North British Railway passenger coach whilst standing during the strike at Edinburgh in April. After the strike ended, the coach left Edinburgh at 6 p.m. on April 13th, and arrived at Carlisle at 8.42 p.m. with nest and eggs intact. Several nests of Blackbird and Song-Thrush were situated on the rain-water pipes and gutters of houses, and at Belle Vue Mr. Dawson had a pair of Robins nesting in an outhouse, which chose for their first nest an old saucepan hanging against the wall, and for their second brood utilised a watering-can hanging in the same shed.

Dr. Chalmers Mitchell's address on the protection of animals to the British Association for the Advancement of Science, at Dundee, in 1912, has borne fruit in the shape of a "Nature Reserve Association"; it has a good work before it, and we wish it every success.

In Carlisle, however, we had already taken a step in this direction, and had secured Kingmoor Common as a "Nature Reserve." This piece of common land has long been noted by Carlisle botanists, entomologists, and ornithologists as a rich primeval tract. In recent years, however, the common has been less productive owing to partial cultivation. It has now been handed to the Museum Committee by the Corporation, and a number of Wardens have been appointed to take charge of it.

An Association has been formed under the name of the "Cumberland Nature Reserve Association," which will administer and protect the "Kingmoor Nature Reserve," and probably others in the county, if opportunity arises.

The Roedeer still maintains a precarious existence in the woods of North Cumberland, and the Badger yet exists in the same area. Reports reach us now and then of these persecuted animals. During the summer of 1912 a Badger was trapped by a rabbit-catcher in the Eden Valley, and one was reported to have attacked a sheep-dog at Cumwhinton.

The Grayling was introduced into the River Eden, in its upper reaches, about twenty years ago. It has now spread



almost the entire length of the river, and is frequently taken at Carlisle. We examined one caught at Carlisle on April 23rd, 1912; it weighed just over 7 oz.

SOUTHERN LAKELAND NOTES FOR 1912. BY ERIC B. DUNLOP.

During the spell of frost at the end of January and beginning of February a number of unusual avian visitors were noted on Lake Windermere. On Feb. 5th I saw a Red-necked Grebe in full winter plumage; several Divers were also noted—I think both Red-throated and Black-throated species were represented. In addition, six Sheld-drakes were seen.

On February 15th a party of four Great-crested Grebes was recorded from the same lake, and an Oystercatcher was seen a few days later by the same observer. A Great-crested Grebe was recorded, in the local Press, as being shot at Milnthorpe towards the end of the month.

On March 30th I found that a Peregrine Falcon had already laid; this is a very early date.

It may be of interest to give the numbers of eggs in clutches of Ravens noted in 1912. I either examined myself or had reliable information concerning eight nests. In two cases only two eggs were deposited; in one, three; in two, four (one of these was a second laying); and in the remaining three instances the clutch consisted of six eggs.

The most interesting record of a mammal is that of a Whiskered Bat that was taken at Windermere on April 22nd.

If any further demonstration were needed of the invaluable services rendered by the Barn-Owl, it is surely given in the case of a nest of this species which I examined on the evening of June 15th. It contained three young Owls. When first examined the following remarkable collection was spread out near the young birds:—Ten Short-tailed Field-Voles, eight Long-tailed Field-Mice, and three Common Shrews; later the same evening the birds had taken three Short-tailed Field-Voles and a Long-tailed Field-Mouse; a total of twenty-five head.

On Aug. 5th two Black Terns were seen on Windermere by a reliable observer who is well acquainted with the species. At this time numerous Common Terns were frequenting the lake.

With regard to game-birds in southern Lakeland, the young

of both Partridge and Blackgame suffered severely from the wet weather, the former being very much reduced in numbers. Both Grouse and Pheasants did well, having evidently gained sufficient strength to withstand the wet which decimated the younger Partridges. Grouse were very numerous, strong, and wild at the commencement of the season.

Appended is a selection of the notes and records sent in to the Bureau :—

1912.

January 7th.—Blackbirds and Song-Thrushes in full song ; first heard four weeks ago. Very mild weather (D. Losh Thorpe).

26th.—Little Auk shot at Rockliffe by Mr. Waller (D. Losh Thorpe).

February 1st.—Smew, young male shot at Grinsdale (Wm. Johnstone).

2nd.—Great Northern Diver (a young bird), Rockliffe (J. Edgar).

5th.—Five Cormorants flew over Stanwix, going up river to feeding place on the Eden (L. E. Hope).

21st.—Sclavonian Grebe shot at Skinburness (W. Nichol).

28th.—First Curlews passing over Troutbeck, Windermere (Eric B. Dunlop).

March 5th.—Nest of Song-Thrush with three eggs in Carlisle Cemetery ; first egg laid on March 3rd. Several others building (J. T. Charlton).

9th.—Grey Wagtails have returned to upland haunts (Eric B. Dunlop).

29th.—Ring-Ouzel in Cumberland (Eric B. Dunlop).

April 4th.—Two House-Martins seen near Etterby Scaur ; a fine, warm, spring day (D. Losh Thorpe).

8th.—Wheatear seen at Silloth (J. C. Dove).

13th.—House-Martin (one), Swallow (one), seen at Silloth, apparently just arriving (J. C. Dove). Nest of Song-Thrush on brake-gear of a railway carriage arrived in Carlisle from Edinburgh (H. Widdowson).

14th.—Saw a Stonechat at Todhills, near Carlisle (J. B. Cairns). First Swallow seen at Kentmere, Westmorland (Eric B. Dunlop). Swallow seen at Stanwix, Carlisle (J. C. Dove).

15th.—Large number of Barnacle and Grey Lag Geese on

Long Newton Marsh, Solway (W. Nichol). A Starling in my dovecote is imitating the notes of a Nightingale, which is in full song in my aviary at Loshville (D. Losh Thorpe).

16th.—Saw and heard Wood-Warbler at Harker, Carlisle (J. B. Cairns).

20th.—Willow-Warbler and Sand-Martin seen at Gretna (W. H. Little).

21st.—Common Sandpiper seen in the Lake District (Eric B. Dunlop). Swallows, Sand-Martins, and House-Martins seen at Wetheral (W. H. Little). Corn-Crake heard at Belle Vue, Carlisle (Fletcher Ritson).

23rd.—Corn-Crake heard at Knowefield, Carlisle (J. J. Grieve). Cuckoo heard at Keswick (J. Kirkbride).

24th.—A male Redstart singing, Troutbeck, Windermere (Eric B. Dunlop). Corn-Crake and Cuckoo heard at Gretna (W. H. Little).

25th.—Wood-Warbler singing, Lake District (Eric B. Dunlop). Corn-Crake at Carlisle (W. S. Marchington).

26th.—Cuckoo heard, House-Martin seen, Pied Flycatcher reported, Lake District (Eric B. Dunlop).

May 4th.—Yellow Wagtail seen, Lake District (Eric B. Dunlop). Pair of Yellow Wagtails seen at Tebay (W. N. Donald).

5th.—Three Swifts seen at Carlisle (H. H. Hodgkinson). Four Swifts seen at Rickerby, Carlisle (W. H. Little). Corn-Crake heard at Stainton, Carlisle (W. B. Redmayne).

6th.—Many Swifts seen in Bowness Bay, Windermere, where they have been for some days (Eric B. Dunlop).

7th.—Swifts seen at Keswick (J. Kirkbride).

9th.—Corn-Crake heard, Lake District (Eric B. Dunlop). Heard Blackcap Warbler and saw Orange-tip butterfly on the wing at Todhills, near Carlisle (J. B. Cairns). Corn-Crake heard at Grey Moor Hill, Carlisle (W. N. Donald). Wild Geese seen on Rockliffe Marsh (W. N. Donald).

10th.—Swift seen at Etterby Scaur, Carlisle (W. N. Donald). Heard Nightjar at Rockliffe, Carlisle (J. B. Cairns).

12th.—Spotted Flycatcher seen, Lake District (Eric B. Dunlop).

20th.—Saw Tree-Sparrow at Rickerby Park, Carlisle (J. B. Cairns).

June 16th.—Redstart's nest in crevice of cliff overhanging the Cambeck. Watched male and female Pied Flycatchers entering nesting-hole in tree-trunk by stream. Nest contains young birds. Old birds very confiding and active. Another pair endeavoured to enter hole when owners were away. Snipe "drumming." Roedeer doe observed. Party of light-coloured Grouse, young just able to fly, at Walton Moss. Tree-Pipit's nest and eggs (J. M. Charlton).

17th.—Wood-Warblers very numerous up River Gelt. Garden-Warbler feeding young. Woodcock rose heavily from swampy ground and flew to bank, where it half fell. A young bird seen distinctly between its legs. Three other chicks found whence it rose, near Brampton, Cumberland (J. M. Charlton).

19th.—Wood-Warbler's nest with four young. Sandpiper with two young. Lesser Redpoll, four young. Dipper, five young, River Lyne, Cumberland (J. M. Charlton).

20th.—Turtle-Dove nesting near Carlisle (J. B. Cairns). Pied Flycatcher's young out of nest. Found two young Oystercatchers, just hatched, among shingle by River Irthing, Cumberland (J. M. Charlton).

21st.—Redstarts very numerous this year (J. M. Charlton).

22nd.—Woodcock seen to carry almost fledged young one when startled. Saw Roedeer fawn in pine wood. Despite the efforts of the landowner to exterminate them (almost successful two or three years ago, when a doe and fawn were shot), these animals, I am glad to see, breed here almost every year now. Grey Wagtail with young, Cumberland (J. M. Charlton).

23rd.—Tree-Sparrow with fully fledged young. They seem to breed in some numbers in the Irthing Valley, in the hollow trunks of willows and oaks (J. M. Charlton).

24th.—Young Oystercatchers took to water and swam across stream on my approach. Pied Wagtail's nest and eggs. Sedge-Warblers and young. Tree-Sparrow in company with female House-Sparrow, and apparently paired, as no others were near. Saw a male Blackcap-Warbler near Irthing. Lesser Whitethroat's nest with one egg, near Brampton, Cumberland (J. M. Charlton).

30th.—Great plague of Rats in this district; all peas and cauliflowers destroyed. Tawny Owls sat on trees near holes at

dusk, and probably caught some of them, near Brampton, Cumberland (J. M. Charlton).

July 5th.—Corn-Crake with young seen to cross main road near Brampton, Cumberland (Stewart Steele).

6th.—Corn-Crake's nest, six eggs, at edge of hayfield. Old birds very anxious, skimming close over grass, like Swallows, as it was being cut. Rooks were seen to destroy the eggs, near Brampton, Cumberland (J. M. Charlton).

8th.—Captured young of Corn-Crake in hayfield. This species was remarkably numerous here this year; I heard no fewer than five calling within half a mile near Walton. Visited Lesser Whitethroat's nest; female half fell off and fluttered along the ground, four eggs, near Brampton (J. M. Charlton).

16th.—Spotted Flycatcher's nest, two eggs. Roused pair of Woodcock at 12.30 p.m., which had been feeding, judging from freshly turned leaves and holes in soil made by beaks, near Brampton (J. M. Charlton).

18th.—Woodcock, startled from the wood, uttered a distinct chuckle of alarm, and looked round at me. Had evidently been asleep. Discovered Kingfisher's nest, 30 ft. above the Cambeck, at top of a sandstone cliff, Cumberland. Song of young of Common Wren very puzzling. Swallows observed catching wind-blown feathers of Geese (J. M. Charlton). A single Mute Swan seen flying due west about 20 ft. above ground near Brampton (S. G. Charlton).

20th.—Sand-Martins nesting in banks of Rivers Irthing and Kingwater in larger numbers than ever before observed, near Brampton, Cumberland (J. M. Charlton).

29th.—Two young Seals were in Silloth Harbour to-day. One was caught (W. H. Little).

August 20th.—Wind, north-west. Flock of thirty or forty Mallard making due east. Owl hooting all day in sunlight near Brampton (J. M. Charlton).

30th.—First party of Meadow-Pipits travelling from moors. Swallows congregating and settling on lee-side of hawthorn hedge to pick off flies, chattering continually, near Brampton (J. M. Charlton).

September 3rd.—Saw Great Spotted Woodpecker during heavy shower of rain, near Brampton (J. M. Charlton).

October 1st.—East wind, strong; flocks of twenty Golden Plover flying east (H. V. Charlton).

3rd.—Flock of sixty or seventy Geese passed over here at 2 p.m. They came from north-west, and passed south, Heads Nook, near Carlisle (G. B. Routledge). Geese heard passing from east to west over Stanwix about 8 p.m.; a clear frosty night. A House-Martin seen at Etterby Scaur (D. Losh Thorpe). Flock of twenty or thirty Geese passed over, going due west, at 3 a.m., calling, near Brampton (H. V. Charlton).

7th.—Flock of one hundred Fieldfares passing south, near Brampton (H. V. Charlton).

9th.—Redwings have arrived near Brampton (J. M. Charlton).

16th.—Small flock of Swallows and House-Martins seen near Stanwix, Carlisle (D. Losh Thorpe).

17th.—Wild Geese flying over Carlisle about 10 p.m. (D. Losh Thorpe).

18th.—Flock of about two hundred Wild Geese flying west over Cumrew, Cumberland (T. Maughan).

21st.—A single House-Martin seen at Stanwix (D. Losh Thorpe).

November 18th.—A Peregrine Falcon seen to stoop at a Kingfisher on the Eden near Salkeld. It missed, but returned again to look for the prospective tit-bit. Jack-Snipe are very numerous here this season, Eden Valley, near Salkeld, Cumberland (H. Britten).

A DIARY OF ORNITHOLOGICAL OBSERVATION MADE IN ICELAND DURING JUNE AND JULY, 1912.

BY EDMUND SELOUS.

(Continued from p. 104.)

HAVING had some supper and got into my fisherman's thick oilskins—for it is now cold enough—I get to my place, again, a few minutes before 8, and find the male Swan at the bank, just opposite the nest. In a moment or two he gets out, and, walking up to it, stands there, as though waiting for something. This is not long in happening, for the female, shortly afterwards, rises, and the little grey cygnets are revealed, pressed together at the top of the mound. The first thing the female Swan does, after her long sitting, is to give her wings two or three great flaps. Then she comes off the nest, and, pecking up a few bunches of grass near it, places them at its base, swinging round her head behind her, each time, in doing so. She then browses a few hasty mouthfuls, and, going to the water, drinks plentifully of it, from the bank, bending down her long neck and then throwing it up into the air, some half-dozen times. Then she enters the water and preens herself in it a little, but without going out from the bank. All the while I am expecting her to swim out, and feed, as the male has been doing, but, as will be seen, she acts very differently. The male, meanwhile, has stood most of this time by the nest and cygnets, but has not taken the place of the female, and is now out of sight, on the further side of the nest. In a very few minutes the female comes out of the water again, and, returning to the nest, she once more broods the cygnets, all in a very leisurely manner. Thus she has voluntarily fasted for some six or seven hours, and then only eaten a few mouthfuls, nor have the cygnets, all this while, had anything. Now the male comes into sight again, walks past the nest, and, just as the female has done, pecks up some tufts of

grass and places them on the ground behind him, near to it, but not quite so near. He then sits down beside them—not, I think, on them—rises in a moment, browses a little grass, and again sits down, at some ten or twelve paces from the nest. Things now seem established, and I begin to make the entry of these last details, but regret doing so, for I have only written a few lines when a commotion of white bodies catches my eye, and, as I look up, a Swan rises from right by the nest, and flies over the lake (or broad stream) with a most musical and poetry-full cry that might well be termed a song. My first idea, naturally, is that it is one of the pair, but, the next moment, I see that they are both at the nest, the male having moved from his place to it. It would seem, therefore—or rather it must be—that a stranger Swan has flown to the nest, from which he has been driven by the indignant male, the female having remained upon it. In a minute or two the male returns to the place he has left, sits down there again, and all is now quiet. Both birds have their heads upon their backs, and seem to have gone to sleep for the night.

9.20 p.m.—The male Swan rouses himself and comes down into the water. Then, all at once, he rises from it, on the wing, and flies away over the lake and low hills of its shore, in the same direction as the stranger bird, and with a cry like its, but not quite so sweet-toned.

9.33.—The male comes flying back, again, with the same melodious note. He comes down in a long graceful sweep, with outspread wings, just off the bank, a little way from the nest, and then both birds fling up their heads and utter beautiful musical cries, as though rejoicing together, the female, at the same time, rising on the nest—a lovely sight !

Since about 7 p.m., a bird has been on the water which can only, I think, be the Great Northern Diver—my first sight of this celebrated species, which scientific collecting, unfortunately (for there really would seem to be no other), is doing its best to exterminate in this its once secure home. Most of the time it has floated asleep, apparently, with its head turned upon its back. Now, however, at a little past 10 p.m., it begins uttering its strange note—a melancholy desolate wail, but with a heart-taking music in it to one who, like Jacques, can suck out

melancholy (which is a great part of poetry) "as a weazel suckes egges." It utters this sad cry at leisurely intervals. "More, I prithee, more."

10.15 p.m.—The male Swan, who, after melodising, has lain down in his place and gone to sleep again, now rises and begins to walk up the slope, at the foot of which, by the water, the nest is situated—the island being like the top of a hill. He is, I think, browsing the grass, but has now passed out of my sight. But still the female Swan sits fast, and fasting, on the nest, and the cygnets have fasted, too, for more than ten hours, as a minimum—a thing which I could never have thought.

10.20.—I can now see the male Swan browsing over the island, and getting towards the top of it. This, with the female sitting on the nest, at its base, and Colymbres diving and fishing in the cold waters, makes a fine northern picture.

10.33.—Male Swan returning towards the nest, browsing as he comes. The female is now stretching down her neck from the nest, as she sits in it, and browsing in that way. I can see her cropping the green, growing grass, very plainly, but also she takes up something from, or almost from, the base of the mound itself, and this has much the appearance of those very bunches of coarse, weedy grass which she pulled up and placed there, on leaving the nest. For it comes up as something loose, long, and stringy—brown, too, I think, and from a brown surface—it does not look as though it were just plucked, and I notice no effort of plucking. Thus it would seem as if the female Swan, on leaving the nest, had provided a little for her nourishment, later on, and, if so, then the male has also helped in this—nothing, however, is given to the cygnets. The male I cannot now see. He may be sitting near the nest, just out of sight; but, no, for now he comes into sight, swimming from that side of it, along the bank. Now he pauses and remains still, just at the water's edge, some ten paces or so from the nest.

The repast of the female, on the nest, has been a very small affair. She soon left off, and is now asleep again, an example which I feel constrained to follow. Just before I go to the tent, at 11.5, the male Swan rises from the water, this time with a mere short, hoarse note, and flies over the lake-like expansion of the river, and on, down its narrowing stream, cresting the nearest

falls. Then, as I go, comes, again, the sad wail of the Diver—

"Sad, but such as, in esteem"—

for it is pleasanter, far, to my ear than the happiest and pleasantest sounds of the human voice, to say nothing of those shrill, strident trebles and gruff growls, the more frequent representatives of what we conceive to be such.

June 10th.—Very unfortunately I sleep till past 8, for which the cold, applying itself to my feet, in particular, and keeping me awake for a very long time, to begin with, is chiefly responsible—however, I should not have gone to bed at all. I have only made a few steps towards my observatory of yesterday, when I see both the Swans, with all the four cygnets, on the water. As I watch them, one of the two makes a short flight out—not more than some twenty yards or so—over its surface, and coming down upon it, again, turns, and, in a moment or two, flies back, each time with clear musical cries, and these are continued in unison, and ring forth more loudly, when the two parents, meeting again, after this short separation, swim proudly, together, about the cygnets, seeming, most plainly, to rejoice and exult in their family, as happy and charming a domestic scene as can be imagined—even in bird life. Shortly afterwards, the other Swan flies out, and returns in just the same way, and the scene is re-enacted in every particular. All then disappear round a promontory, and, as I crawl after them, one Swan comes flying back, round another projecting point of land, from behind which, as well as the other, I must necessarily be invisible—showing clearly that my presence has had nothing to do with these little flights. There is, however, another presence, which may have had, for now a third. Swan—doubtless the stranger of yesterday—comes swimming up the stream, passing me at only about fifty yards distance, so that I can see, through the glasses, the curious red of the cheeks, like a sort of film or fine netting stretched over them, which, Sigurdsson tells me, comes with age, independently of the sex of the bird.

The pair of Swans, with the cygnets, now swim towards the nest, and when a little way off the shore of the mainland nearest their island, one of them flies out towards the stranger bird, who has, meanwhile, flown back to the same end of the lake, on the opposite side. The Swan that thus flies out is, I believe, the

female, and when she is half-way towards the intruder—for as such she is evidently considered—the latter flies, as it were, to meet her, on which she reverses, and returns, when there is the same scene of rejoicing between the two parents, over the cygnets, as I have before described, but more marked and yet more musical. The stranger Swan, meanwhile, has come down on the water, some seventy to one hundred yards away, as I reckon it, from the family group. It is evidently too near, and, this time, the male goes out against her—at least, I think it is he, though the stranger, which might seem to make this unlikely, is almost certainly of the opposite sex. She does not await him, however, but rises in flight, when he has only got half-way towards her, upon which, with little apparent animosity, he wheels and comes flying back again, and then there takes place the finest and most interesting of these remarkably beautiful scenes. The female Swan swims to welcome the male, on his return, just as he has done her, upon the former occasions, and the two, now, turned three-quarters towards each other, lift up their long, graceful necks, and, in unison, wave their magnificent, shining white wings, whilst repeatedly uttering their most lovely, most musical cry. This is all done over the cygnets, as it were, and makes such a picture of grace, beauty, and happiness, such a lovely bird group, so charming a scene of bird rejoicing, as words—at least, my words—are altogether inadequate to convey. Some time afterwards it is all done over again, upon land, and then, once more, in the water; for, whilst I have been entering this, all the family have swum round the island into another blue, out-broadening of the stream, on that side of it, and on a little projecting point of the grassy margent of this, I find them, now, on cresting the intervening low hill. The cygnets are lying down, whilst their parents stand, fronting each other, on either side of them, as though to guard them, and still lift their heads, wave their wings, rejoice, exult, and make music. All at once, one of them flies out over the water, and, at the same time, I see the stranger Swan upon it, who takes flight, as before. Upon this—also just as before—the pursuing bird desists and returns, the one that has been left with the cygnets flies, with the usual music, to meet it, and as they come down together, front to front, on the water, they almost touch, or perhaps

quite, and there is the same beauteous scene between them. It is still continuing, though the most exalted transports are over, when, all at once, the four little cygnets come running into the water, to their parents, whether in response to a low "hoop, hoop" on their parts, I cannot say, for I am at too great a distance to hear this, though the strong melodious cries fill the air. I believe, however, that one of the two—probably the female—made a pause in the symphony, to give them this signal.

Three or four times, after this, there is the same approach on the part of the stranger Swan, and the same out-flying and putting of her to flight when she is adjudged to be too near. On all these occasions it is the female, I think, who flies out, and more than once, on her return (when there is always the same scene) she brings down her wings upon the water, right over the cygnets, as though claiming them. But the three or four times have become five or six, or more, now. It all keeps continuing, the poor lonely Swan—for there is a powerful alloy to the happy side of the picture—time after time coming down on this sheet of water, as she did on the other, and sometimes flying quite close up to the group, and circling round them, to pass on and come down, as before. Every time, without exception, one of the happy pair flies out to chase her off, circling back, now, almost as soon as she rises (when she, as soon, comes down again), and every time this one is the female, if a slighter build, and, especially, a much thinner and slenderer neck, can settle it. Always there are the same rejoicings after each homecoming, but as the occasioning incident becomes more and more frequent, they grow less marked.

But there has been another scene in this strange drama, which I only now find time to note—one which throws light upon its whole meaning, and especially explains that early struggle, at the nest, in which it originated, unless, indeed, as I think is most probable, it had been going on before I arrived. When the pair of Swans, with their family, entered the fresh sheet of water, the single bird did not immediately follow them, but went first to the nest—now no longer within the view of its owners—which she ascended and stood in, but did not, during the few minutes I remained, sit down; and thus I left her, upon

starting in search of the pair. I wish, now, that I had stayed a little longer, to see if she settled herself down—though, if she did, it was not for long—but the essential thing is that she took possession of the nest immediately upon the departure of its owners, which makes it more than probable that her struggle, by it, with the male, originated in a similar attempt.

The explanation which I place upon the whole of the above facts is as follows :* That the stranger Swan is a desolate bereaved mother, and that the strong object of attraction for her is a family of cygnets, not her own, has, for some time, been growing more apparent to me, and will perhaps be disputed by hardly anyone, after what I have just set down. The poor bird evidently longs ardently for what she has, by some means, been deprived of, and the taking of her eggs "in the interests of science" must be included amongst the various causes by which such bereavement and suffering may have been brought about. Nay, since, on this same stream, only a short distance off, there is now an empty Swan's nest which, up to a few days ago, had eggs in it, on which the Swans were sitting, and since a Danish dealer, working specially, so I was told, for an English scientific collector, has lately passed here, in his wide-exterminating rounds, it is even possible that the female of this pair, thus made childless, is the very stranger bird who has had all this heartache inflicted on her, and who still, at this moment, floats near to a point of land on which the objects of her envy and longing are established, like the Peri at the gates of Paradise. And now, once more, she is driven from those gates, and, this time, grappled in the air, by her more fortunate sister. This last incident—the first of the kind I have seen—took place at only a little distance from where I was (and am still) lying. The pursuing bird did not seize the plumage of the intruder, which she could have done, and as one might have expected her to, but bit at its beak, an action which was met in the same way, by the latter. This pecking, however, was quite ineffective, and hardly delayed the single Swan in her retreat. Within a very few minutes, however, she returns, and is again

* This conclusion is strengthened by my observations on the habits and character of our own Mute Swan, and by what the keeper has told me in this connection.

driven away, and so afflicted is this poor bird that she seems to take very little notice of my presence, coming down, and remaining on the water, quite near me. Naturally, I do not put myself more in evidence than I need to do ; still, she cannot but see me, and the fact of her permitting such an unusual proximity is evidence of her distracted state of mind.

Now, as it appears to me, it is not a creditable thing thus to bring sorrow into the hearts of other beings, even when those beings are not human ones, a distinction which, in the light of evolution, has no real force or validity. To have made a being suffer for our whim (thus breaking the golden rule) cannot in itself, I suppose, be a subject of gratulation to any one. If one wishes to go on doing so, he had better not watch birds very closely—and especially not Swans ; though for my part, I wish he would, since the result might possibly be a happy one. The only plea which can be seriously urged in justification of these practices is, of course, the benefits which they confer on science ; but will science kindly consider (I wish she would, in time) which is likely to be of most benefit to her, the possession of birds' eggs—even including the simulative ones of the Cuckoo, the interest of which I am very far indeed from denying—or ornithology as a whole, for the continued existence of the last is getting more and more to depend upon the speedy renouncement of the first. The end will not come quite in our time, but is there not a moral obligation to think a little of posterity ?—and has science no regard for morality ?

(To be continued.)

DESCRIPTION OF A NEW FORM OF LONG-TAILED TIT.

By COLLINGWOOD INGRAM.

Ægithalus caudatus taiti, subsp. n.

RECENTLY, while examining the large series of Long-tailed Tits in the British Museum (Natural History), I came across two specimens from Portugal. These at once struck me as being very dark-plumaged birds, obviously distinct from *Ægithalus caudatus irbii*, Sharpe & Dresser, which form is generally supposed to inhabit the entire Iberian Peninsula. On careful comparison with other geographical races, they appeared to exhibit certain distinctive characters, sufficiently well pronounced to warrant their separation as a subspecies. I propose to name this Portuguese race in honour of Mr. W. C. Tait.

They resemble *Æ. c. irbii* in having practically no rose-coloured feathers on the shoulders, but the mantle is very much blacker, only a few (or no) slaty feathers being apparent on the back. Sides of face and pectoral band very distinctly streaked with sooty blackish.

Length of wing, 59 mm.; tail, 80 mm.

Hab. Coimbra, Portugal. October, 1886.

Type in the British Museum.

THE PHARYNGEAL TEETH OF FISHES.

By COLONEL C. E. SHEPHERD (Indian Army).

(Continued from vol. xvi. p. 459.)

CHARACINIDÆ.

THE *Characinidæ* are furnished with formidable teeth in their jaws; their pharyngeal teeth, however, are feeble in comparison.

Alestes nurse, a Nilotic fish, has seventeen long, fine, horny gill-rakers on the first cerato-hypobranchial arch, and thirteen on the epibranchial. The inner and outer sides of the other arches are thickly set with the same kind of delicate gill-rakers, also carried up to the top of the epibranchials, those on the outer sides being a trifle longer than those on the inner side. No pharyngeal teeth apparent; a thickening of the mucous membrane into a seeming boss where the first, second, and third hypobranchials join the basibranchials, and the surface at these places covered with papillæ.

Citharinus citharus, a Nilotic fish, has a number of small bristle-like gill-rakers on the inside top of the first three branchial arches extending up the epibranchials. No pharyngeal teeth apparent.

Distichodus niloticus, as its name implies, a Nilotic fish, has minute hair-like gill-rakers standing up both on the inner and outer sides of the branchial arches, which are also carried up along the epibranchials to their upper part. No pharyngeal teeth apparent.

Erythrinus salmoneus, from British Guiana, has four, short, horny gill-rakers, followed by six tubercular lumps on the first cerato-hypobranchial arch, with one short gill-raker and some tubercles on the first epibranchial. These gill-rakers and tubercles bear teeth. The other arches have horny tubercles, but not toothed. The upper pharyngeal teeth are minute, and placed on the heads of the second, third, and fourth epibranchials. The lower pharyngeals are similarly minute.

Hydrocyon brevis has eight horny gill-rakers, which are rough on the inside; these grow between the angle and the end of the hypobranchial, and there is a rudimentary one on the first epibranchial. Very small, almost rudimentary ones exist on the outside of the second and third arches. The inside faces of all the arches are smooth. A patch on each side of minute villi-



Fig. I.—HYDROCYON BREVIS.

form teeth represent the upper pharyngeal teeth; the fifth branchial arch carries two triangular patches covered with papillæ, but teeth could not be seen or felt on them. The junction of the hypo- with the basibranchials forms distinct little prominences, visible in the illustration (Fig. I.).

Macrodon trahira, the Haimara of British Guiana, has five short (half the length of the gill lamina below it) toothed, horny gill-rakers; along the first cerato-branchial the hypobranchial is bare of gill-rakers; there is a teeth-bearing tubercle at the angle and a couple on the epibranchial; the upper surfaces of the hypo- and epibranchial are covered with minute teeth. The other branchial arches are all bare of gill-rakers or tubercles, but have minute teeth on them. There are for upper pharyngeal teeth a small collection of minute teeth on the head and along the limb of the second and third epibranchials, the latter being the stronger; there is an absence of those distinct patches or shields common in other fish. Joining the third and fourth epibranchials is a broad patch of villiform teeth. The lower

pharyngeals are in two long patches of minute teeth, with a stronger row on each of the inner margins. The basibranchials also are covered with minute teeth. All the teeth in the gullet, minute as they are, offer considerable resistance to the feel if a finger is drawn over them against the direction of the swallow.

Myletes setiger, the Pacu of British Guiana, has nineteen short, horny gill-rakers on the first cerato-hypobranchial, and sixteen on the epibranchial; they are non-denticulated. The longest—the first few near the angle—are about one-third the depth of the gill lamina below them. The other arches bear shorter but numerous gill-rakers on each side, making a very good filter. The gill-slits run very far into the fissures covering the basibranchials, leaving but a very narrow slip in the middle line between the slits on each side; some minute teeth on the upper part of the second and third epibranchials represent the upper pharyngeal teeth, and some similar teeth at the back of the mouth on the fifth branchial arch represent the lower pharyngeal teeth.

Myletes ellipticus has fifteen moderately long, horny gill-rakers on the first cerato-hypobranchial arch, the longest about one-half the depth of the gill lamina below it; they are not denticulated. The other arches carry numerous small gill-rakers on each side, making a good filter. The gill slits in this fish do not run up so closely to each other on opposite side as in *M. setiger*. The pharyngeal teeth are minute and similarly placed as in the last-mentioned fish.

SILURIDÆ.

In this family the teeth visible in the jaws and front of the mouth are feeble, especially when compared with those of the *Characinidæ*, but their pharyngeal teeth are more effective.

Bagarius yarrelli is, however, an exception; its visible teeth in both upper and lower jaws are long and pointed, its upper pharyngeal teeth are strong and cardiform, and resemble miniature tiger claws; they were referred to in the opening article of this series.*

Aelurichthys gronovi, from Demerara, has cardiform teeth

* 'Zoologist,' November, 1910, p. 418.

for the upper pharyngeal teeth, and similar teeth for the lower pharyngeals.

Arius proops, from British Guiana, has on the first cerato-hypobranchial ten long horny gill-rakers. There were, however, eleven on the left side first arch. They are about four-fifths of the gill lamina immediately below the longest ones. The first seven from the angle are much of a length, after that they diminish. On the first epibranchial there are five similar ones on each side. There are no gill-rakers on the inner sides of the arches. Those on the outer sides of the second, third, and fourth arches reach across with their points to the inner side of the next outer arch. Those on the third and fourth arches are placed distinctly apart, and as they stretch across to the next outer arch make little square openings for the escape of water to the gills. There are no pharyngeal teeth on the second epibranchial; an elliptically shaped shield of villiform teeth grows on the third and fourth epibranchials. The lower pharyngeal teeth, also villiform, are in a long narrow V shape, the two limbs and apex being distinctly apart.

Arius spixii, from British Guiana, has thirteen horny upstanding gill-rakers, feebly toothed, on the first cerato-hypobranchial; the longest of these is just a trifle shorter than the gill lamina below it. On the first epibranchial there are five similar gill-rakers. The inner sides of the other arches have very small outstanding, and the outer sides have upstanding, gill-rakers. A small but distinct patch of ellipsoid shape is attached to the third and fourth epibranchials, covered with minute cardiform teeth. The lower pharyngeals are on two narrow strips, barely visible in the mucous lining of the floor of the mouth.

Arius parkeri, from British Guiana, has ten upstanding gill-rakers, about four-fifths of the gill lamina below them in length of the longest, on the first cerato-hypobranchial arch, with four on its epibranchial, and a few rudimentary ones above them. Short upstanding gill-rakers line the outer edges of the other arches, but there are no gill-rakers on the inner faces of any of the arches. An elliptical patch attached to the heads of the third and fourth epibranchials, which patch covered with minute cardiform teeth forms the upper pharyngeals. The lower are in two patches of minute teeth, narrow in shape.

Auchenoglanis biscutatus, a Nile fish, has nine gill-rakers along the first cerato-hypobranchial, seven of them long and upstanding, the other two much smaller, and two on the epibranchial. Fleshy tubercular gill-rakers grow along the sides of the second and third arches. The upper pharyngeal teeth are in two oval patches, with minute villiform teeth embedded in mucous membrane; the lower pharyngeals are similar.

Bagrus bayad, a Nile fish, has thirteen horny gill-rakers on the first branchial arch, with four on its epibranchial. The gill-rakers at the angle of the first arch, of the same length as the depth of the gill lamina below it. The inner sides of the first and second arches are smooth. The outer faces of the second, third, and fourth arches have horny gill-rakers, those on second being longer than those on the other two. The inner faces of the third and fourth arches have small but upstanding gill-rakers. The filter formed by the gill-rakers is not a very close one. The upper pharyngeal teeth, which are villiform, are in two circular shields at the ends of the third and fourth epibranchials. The lower pharyngeal teeth, also villiform, are in two triangular patches close together at their anterior apex, but diverging as they get nearer to the oesophagus.

Schilbe mystus, a Nile fish, has ten horny gill-rakers on the first cerato-hypobranchial, with three on the epibranchial. The gill-raker at the angle is the same in length as the gill lamina below it is in depth. The other arches carry gill-rakers as described for the last-mentioned fish. The pharyngeal teeth are also similar.

Callichthys littoralis, the Hassar of Demerara: this is a small fish. On the first and second branchial arches there are soft gill-rakers; on the third and fourth arches the longer gill-rakers are on the inside of the arch, and fit up against the gill-rakers of the next interior arch, a reversal of the usual plan. There is a large soft pad of mucous membrane, with a row of cardiform teeth below it for the upper pharyngeals. The lower pharyngeal teeth are very minute.

Platystoma fasciatum has twenty-three fine horny gill-rakers on the first cerato-hypobranchial, with nine on its epibranchial. The longest one at the angle measures four-fifths of the gill lamina below it. The other arches have similar fine horny

gill-rakers on their outer sides, but situated low down, shorter than those on the first arch, and getting shorter still from the outer to the inner arches. The first and second arches have none on their inner faces, but the third and fourth have. The edge of the upper surface of the branchial arches is serrated. The upper pharyngeal teeth show as two flattened spherical patches of minute cardiform teeth, and the lower pharyngeal teeth in two markedly broad triangular shaped surfaces, with a distinct median division, are of similar but even finer teeth.

Doras maculatus, the "Bombom" of Demerara, has twelve short horny gill-rakers on the first cerato-hypobranchial, the last three of which are rudimentary; the longest one is at the angle. The length of this is contained about two and a half times in the depth of the gill lamina below it. There are three gill-rakers on the first epibranchial. The other arches have tubercle-shaped gill-rakers, which are set on the outer sides of the arches and rather low down, and there are papillæ on the top surfaces of the second, third, and fourth arches, more numerous on the latter two than on the second. A round-shaped shield of villiform teeth attached to the third and fourth epibranchials forms the upper pharyngeal teeth on each side. The lower pharyngeals are in two distinct but roughly triangular patches of villiform teeth.

Synodontis schall, a Nile fish, has on the first cerato-hypobranchial arch seventeen horny gill-rakers, which are denticulated on the inner side; there are three on the epibranchial. The second and third arches have a number of closely-set gill-rakers covered with papillæ. The mucous membrane lining the upper part of the back of the mouth is covered with prominent papillæ. The upper pharyngeal teeth are in two circular patches, very low down at the back of the mouth, with minute chocolate-brown cardiform teeth. The lower pharyngeal teeth are in two diverging patches, with two rows of prominent but small teeth standing up along the inner edges of the patches, with smaller teeth outside them; these are likewise chocolate-brown in colour. It is interesting to note that Günther, in 'The Introd. Study of Fishes,'* says of this fish: the teeth in the lower jaw "have a slightly-dilated brown apex."

* P. 573.

In *Malapterurus electricus*, a Nile fish, there are ten soft gill-rakers on its first cerato-hypobranchial arch; the first four are upstanding, the others lie flat down; there are besides these and beyond them four rudimentary gill-rakers. There is one upstanding one on the epibranchial. On the other arches there are a few short upstanding gill-rakers on the outer sides only, separated from each other. The upper pharyngeal teeth are in two circular patches of villiform teeth, and the lower ones in two roughly triangular patches.

STROMATEIDÆ.

In this family we get an example of setiform or bristle-like pharyngeal teeth.

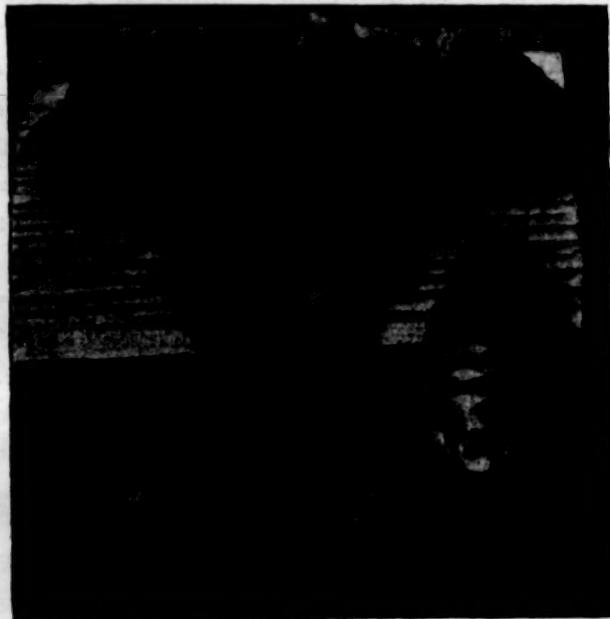


Fig. II.—*STROMATEUS NIGER*.

Stromateus niger, the Black Pomfret, Indian Ocean, has twelve horny, short gill-rakers on the cerato-hypobranchial of the first arch, with two on the epibranchial. The seventh and eighth from the angle are the longest, and their length is contained about two and a half times in the depth of the gill laminæ just below them. The other arches have a few tubercles on them, distant from each other and small. The upper

pharyngeal teeth show as two patches, one on each side, of thickly planted bristles (Fig. II.). The upper part of the gullet

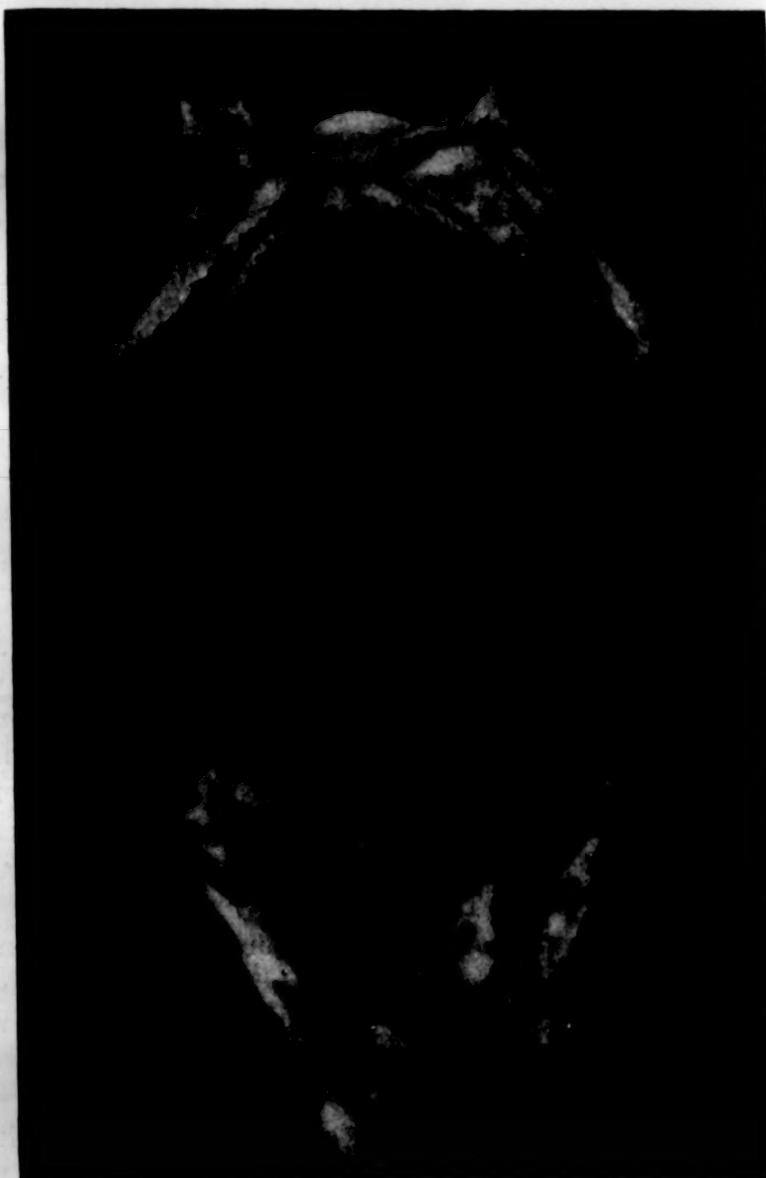


Fig. III.—*LOPHOLATILUS CHAMELEONTICEPS*.

has been cut through and spread out, otherwise the bristles would not have shown clearly. The bristles are curved, and give the feeling to the touch of a short stiff brush rather than

teeth. The lower pharyngeals consist of the same sort of bristles. The crustacean on the right lower side of the illustration was taken out of the mouth of the fish described, but it is not, as might hastily be inferred, a specimen of one item of the food of this fish. It is an Isopod known as *Cymothoa æstrum*, a parasite that lives in the mouths especially of the Stromateidæ, where, as far as its life-history is known, it passes most of its existence. Were these fishes provided with sharp, cardiform, pharyngeal teeth, as so many others are, these parasites would have a more perilous time. There is a Decapod (the *Hippa asiatica*), found in sandy beaches. At Madras it is largely used as bait by the local fishermen. This is very like in general appearance to the *Cymothoa*, but very different in its habits, and is only mentioned to prevent the two being taken one for the other.

PSEUDOCHROMIDIDÆ.

Lopholatilus chamæleonticeps, the Tile-fish, living on the bottom of the Gulf Stream slope, and found in the North Atlantic at some four hundred miles or more from the American coast. This fish has sixteen horny gill-rakers on the first cerato-hypo-branchial arch, the first four from the angle being much of a size, and in length about one-half the depth of the gill membrane below them ; all these gill-rakers have teeth on the inner surface. There are nine gill-rakers on the first epibranchial, the upper four of which are rudimentary. The gill-rakers inside of the first and on the other arches are tubercles with a few minute cardiform teeth on each one. The upper pharyngeal teeth form (see Fig. III.) a narrow patch on the second epibranchial, with conical teeth, but not many of them, with a distinct provision of gum above and below the patch. The lower patch in two pieces, with a distinct divisional line across it, consists of conical teeth embedded in mucous membrane, but not very thickly studded with them. The lower pharyngeal teeth are in two portions, with a row of rather distinct conical teeth on their inner margins that stand well up ; the other parts of them have similar teeth, but not quite so prominent. The surfaces of the basibranchials and the branchial arches are cased with a skin covered with papillæ.

(To be continued.)

NOTES FROM THE AVON VALLEY, HAMPSHIRE
(1912).

By G. B. CORBIN.

A RECORD for the past twelve months may almost be summed up in the word "rain." A rich and bountiful harvest, damaged, and in some instances almost destroyed, by wet and unfavourable weather at the time of ingathering, followed by such mild open weather that primroses were gathered at Christmas, and in the early days of the New Year gipsies were hawking daffodils in the street quite six weeks earlier than usual! Thus the seasons seemed upside down, the wildfowl shooting proving almost a complete failure from the flooded condition of the river; only one "shoot" was possible (when about one hundred head were killed), whereas some six or seven meetings in the same period of time usually took place. Consequently the birds had a comparatively quiet and peaceful time, and my few rambling notes are not so bloodstained.

At the opening of the shooting season Snipe were plentiful, and later the handsome little migrant "Jack" was far from rare; but Woodcock were few and far between, although their nesting in the neighbourhood has long been known. The spring of 1912 having been favourable for the nesting of the Ducks, Moorhens, &c., a goodly number of home-bred birds were on the flooded river when the shooting season commenced, and were later augmented by visitors from the north, but not a rarity was seen. Wigeon were very early in appearing, the peculiar characteristic "whistle" of the species said to have been heard more than once at the end of August; certainly there was no mistaking the notes early in September, and a friend of mine shot a bird at the end of the month. Eventually Wigeon were seen in unusually large flocks, and so continued throughout the winter, and, although circumstances prevented their being disturbed or worried, they ever seemed wary and on the alert. Perhaps the same remarks may apply to the sometimes large

flocks of Teal. There is no doubt this handsome little duck nests in the neighbourhood much more frequently than formerly, and it was a gratifying sight, with the aid of glasses, to see young Shovelers amongst the fowl upon the water, confirming the fact of their regular nesting here.

A bird seen on the water, and afterwards numbered with the comparatively few that were killed, was a fine specimen of the Great Crested Grebe, a species by no means common in this immediate locality, but as it nests in another part of the county, and this is the third season I have known of specimens here, may we hope it is extending its range, and will become a "native"? At one time a considerable increase in the number of Coot was observable, especially when the water was at its highest, and migrant parties were heard at night coming in over the fields from the north-east. The number and different species of Gulls to be seen was also remarkable, especially when the water receded from its highest level. The appearance of the little Black-headed Gull was to be expected, as it has established a small colony in the Valley, whilst the Kittiwakes and Common Gulls are frequent visitors in winter, but the larger species, Herring and Lesser Black-back, are not so frequent. Of the former, it was seen in almost all stages of plumage, from the speckled to the adult; but the Black-backed caused the most comment, as some of them were in fine plumage, their parti-coloured backs and neck being very conspicuous, whether at rest or on the wing. A specimen picked up dead in a ploughed field was sent me, its plumage perfect and spotless, giving no indication whatever of how it met its death. And, if inference is to be drawn from the large flocks of Lapwing which seemed to increase as the water drew back to its usual channels, the lovers of Plover's eggs need not anticipate a speedy shortage of that delicacy; and, strange to say, the appearance of the "Peewits" was almost sure to be followed closely by one or more Peregrine Falcons. On one occasion two or three birds, one of which was said to be very large and very dark, as well as swift and destructive were seen, but all evaded the gun.

The most interesting item I know of was the sight of an Osprey taking fish on several occasions from the large lake-like piece of water to the west of Ringwood. From time to time it

has been my privilege to record the autumn "flying visit" of a fish-hawk—once, I am sorry to say, with fatal termination. In the present instance all went well, and although it was seen fishing on several separate waters, and guns were pointed at it, it escaped, as far as I could learn, without the loss of a feather. With a plunge and splash, it was seen to take fish from the waters, and in one such instance a gun fired in the direction caused it to drop the prey, which was eventually secured, and proved to be a Roach of about a pound weight. It was brought to me, and had a piece torn out of its back between the head and the dorsal fin, as if removed by the wonderful foot and claws of this grand bird.

On the higher grounds and fields to the east of the Avon an unusual number of Golden Plover resorted during the winter—they generally frequent the downlands of Wilts and Dorset, to the east—and at the same time I was informed of a pair, or at least two, hawks taking up their quarters—if not together, at least in the same locality. From description I took it to be a pair of Merlin, from the size differing so much; the smaller one was designated the "little black hawk," and was said to be the most active of the two, especially amongst the Sky-Larks, which they seemed to be worrying daily over a wide extent of country, and interested many observers. I did not hear of the Brambling in any extraordinary numbers, as they sometimes are seen in the fens, especially when beech-nuts are as abundant as they were last season. The Little Owl nested in several fresh localities, and specimens of the fierce little creatures were shot.

On account of the floods, angling—at least from the banks—was almost impracticable, but the high water was, I suppose, beneficial to the "coming up" of Salmon, as I understood over thirty fine fish were taken from the water running through one estate, most of them over 20 lb. Some extraordinary takes of Roach were also recorded. One part of the river was almost swarming with large Pike, though only one, I believe, over 20 lb. was taken, yet an unprecedented number between 16 lb. and 18 lb. were landed. The most remarkable capture during the year was a Trout, turning the scale at 15 lb. 1 oz.

A fine Roe-buck was shot in a wood near here. Its presence was unsuspected.

THE DISTRIBUTION OF BRITISH ANNELEIDS.

BY THE REV. HILDERIC FRIEND, F.L.S., Fellow Royal Microscopical Society.

(Continued from p. 71.)

35. SOMERSET.—Many years ago I was intimately acquainted with a gentleman in Wigton, Cumberland, who took a genuine interest in Nature Study. In July, 1891, a letter came to me from his son, stating that he was sending me a consignment of earthworms from Bath. Those in moss were dug out of clay soil, the others being from *débris*. The worms thus received from Mr. John Huddart included (1) *L. terrestris*, (2) *L. rubellus*, Hoffm., (3) *Allolobophora longa*, Ude, (4) *A. turgida*, which I find marked "variety, examine again," (5) *Eisenia fætida*, or the Brandling, (6) *Dendrobæna subrubicunda*, or the Gilt-tail, and (7) *Allurus tetrædrus*. Later on I received (8) *L. castaneus*, (9) *Allolobophora trapezoides*, which is closely allied to *A. turgida*, and (10) *Eisenia mucosa*. Finally, in May, 1902, along with the three species of *Lumbricus* already named, I had the pleasure of receiving (11) *D. celtica* (= *mammalis*), which, as far as I am aware, completes the list, though it ought to be much longer. Total number of species recorded, 11.

36. STAFFORDSHIRE.—Up to December, 1896, not a single earthworm record for this county was known to me, and even now the list is exceedingly meagre. In 1897–8 my own observations resulted in the discovery of seven species. During this time, though I resided in the county, my time was too fully occupied with other subjects to allow of an exhaustive survey. The records were—(1) *L. terrestris*, (2) *L. rubellus*, (3) *L. castaneus*, (4) *A. longa*, (5) *A. chlorotica*, (6) *Octolasmium profugum*, in my garden at Ocker Hill in plenty, and (7) *Allurus tetrædrus*, in damp places. On June 1st, 1910, I collected near Wordsley, on the banks of Staffordshire and Worcestershire, and added (8) *D. subrubicunda*, and (9) *A. caliginosa* (which includes *turgida* and *trapezoides*). In a dead tree near the Stour (10) *D. constricta*

was taken, and somewhat later (11) *D. arborea* occurred near Walsall.

37. SUFFOLK.—In spite of the fact that I resided in this county for some time, only five earthworms are on record. Yet the county must be full of interesting things, if one only had time to collect them, as is shown by the fact that wellworms occur here which have not hitherto been found elsewhere. Mr. Mayfield, my Norfolk correspondent, sent me, on February 14th, 1893 (1) *L. terrestris*, (2) *A. longa*, (3) *A. turgida*, and (4) *O. pro-fugum*. The latter I often found in my garden at Mildenhall. I also noted other species, but omitted to record them all, except (5) *D. arborea*, in old tree-stumps near the Workhouse on the Thetford Road.

38. SURREY.—The worms of Surrey seem, in some extraordinary way, to have been quite neglected. The Kent records may be consulted, as some of my own gleanings were made on the borders of the two counties. In August, 1909, I stayed for a fortnight at Addiscombe, and also visited several places around. As a result, it was possible to record four species of *Lumbricus*, viz. (1) *L. terrestris*, (2) *L. rubellus*, (3) *L. festivus*, and (4) *L. castaneus*; with several species of *Allolobophora*, as the old genus was called before being split up. Noteworthy are (5) *A. longa*, (6) *A. trapezoides*, (7) *A. chlorotica*, (8) *Eisenia fetida*, (9) *E. rosea*, and (10) *D. subrubicunda*. Around Dorking (11) *Allurus tetrædrus* was plentiful, together with several of the foregoing. I find a query against one species (*D. constricta*), but on March 25th, 1911, Mr. F. M. Roberts, of Addiscombe, sent me the Brandling and Purple-worm, together with mature specimens of (12) *D. mammalis*.

39. SUSSEX.—This county has received a considerable share of attention on the occasion of my frequent visits to Hastings and other parts. Early numbers of 'Science Gossip,' 'Field Club,' and other journals contain reports, and from these I make the following list:—In the early days of November, 1890, my first, and in March, 1892, my second exploration took place ('Science Gossip, 1892, pp. 122, seq.). On leaving the train, on this latter occasion at Robertsbridge, for a walk to Dallington, I found (1) *Allurus tetrædrus*, then (2) *L. rubellus*, (3) *L. castaneus* (= *purpureus* of earlier records), and (4) *A. chlorotica*. At Dal-

lington, I added (5) *L. terrestris*, and (6) *A. longa*; then (7) *L. festivus* (= *rubescens*), which I had only shortly before re-discovered after it had been lost to science for many years. Here for the first time (8) *D. constricta* was added to the British lists, and (9) *D. arborea* was also found. Next came (10) *Bimastus eiseni*, a somewhat rare species, and (11) *Dendrobæna celtica*, now known as *mammalis*. On the way to Battle, the red, purple, green, and turgid worms were met with, and four additions were made to the foregoing list, viz. (12) *A. turgida*, (13) *Eisenia rosea* (= *A. mucosa*), the Brandling or (14) *Eisenia fætida*, and the Gilt-tail (15) *D. subrubicunda*. The following day (March 30th, 1892), walking from Pevensey to Hurstmonceux, I found *Allurus* plentiful in the ditches, the Brandling in dung-heaps by the roadside, the greenworm (No. 4) under stones inside the Castle, and *L. terrestris*, *L. rufescens* (= *festivus*, No. 7), *A. longa*, *L. castaneus*, and *E. rosea*, en route. All these I have repeatedly found since in these and other Sussex localities, while my mother sent me *Allurus*, *E. rosea*, *A. chlorotica*, *L. rubellus*, *L. castaneus*, *A. trapezoides*, and *D. constricta* from Dallington in May of the same year. In 1897 I compiled a list of Sussex earthworms as then known, and it contained one addition, viz. (16) *O. profugum*. On February 10th, 1894, Mr. Guermonprez wrote me from Bognor, and said he had found *L. terrestris*, *L. castaneus*, *A. chlorotica*, *E. fætida*, and some other species. During recent years my attention has been chiefly directed to the Enchytraeids and microscopical Annelids, but a few interesting additions have been made to the list of Sussex earthworms. The most interesting in 1911 was (17) *Helodrilus oculatus*. This is well distributed in the South, having been taken at Boreham, August 31st, and at Hastings, June 20th and July, 1912. On July 8th, 1912, I found a small worm at Ecclesbourne, which is very nearly allied to the Square-tail (*Allurus tetrædrus*), but is much smaller and more tender. I name it provisionally (18) *Allurus mollis* (see Trans. Notts. Nat. Society, 1911-12).

40. WARWICKSHIRE.—Many years ago, while on a visit to Rugby, I collected (1) *L. rubellus*, (2) *A. longa*, (3) *A. chlorotica*, and (4) *Allurus tetrædrus*. On February 24th, 1896, Mr. S. T. Dunn, B.A., sent me (5) *L. terrestris*, (6) *L. castaneus*, (7) *Eisenia*

rosea (= *A. mucosa* of early records), and (8) *A. turgida*. The same autumn (November 23rd, 1896) I collected at King's Heath, finding all the foregoing, and adding (9) *D. subrubicunda*. Mr. T. Humphreys sent me on September 20th, 1909, some worms from Edgbaston, but they were all of the common types. I found No. 9 in Dr. Gamble's garden at Edgbaston in May, 1911. It will be seen that the list is a very poor one, and it is very difficult to interest collectors in the subject.

41. WESTMORELAND.—In the 'Naturalist' for January, 1891, p. 13, is an article on the Earthworms of the North of England, in which my first Westmoreland records are given. These include (1) *Eisenia fetida* from Kendal, with (2) *E. rosea* (= *A. mucosa*); and (3) *A. trapezoides*. From the same locality I obtained the first specimen of *Perichaeta* I ever saw. On October 19th, 1892, I collected at Ambleside (4) *L. terrestris*, (5) *L. rubellus*, and (6) *L. castaneus*; also (7) *Allurus tetrædrus*, the Brandling and Trapeze-worm, with (8) *A. longa*, (9) *A. turgida*, (10) *A. chlorotica*, (11) *D. subrubicunda*, and (12) *Octolasmium profugum*. On March 5th, 1912, Prof. Gamble wrote from Birmingham University to say he had collected near Arnside *L. terrestris*, *A. chlorotica*, *D. subrubicunda*, and (13) *Octolasmium cyaneum*.

42. WILTSHIRE.—On March 24th, 1892, Mr. J. Winkworth sent me a large consignment of worms from this county, numbering some hundreds. There were six species, viz.: (1) *L. terrestris*, very fine typical forms, (2) *L. rubellus*, (3) *L. castaneus*, (4) *A. longa*, one with double tail (for which see 'Science Gossip,' May, 1892), (5) *A. turgida*, and (6) *A. chlorotica*. Nothing else appears to be known on the subject.

43. WORCESTERSHIRE.—The Earthworms of this county have been treated by me in the 'Transactions' of the Nat. Hist. Soc., vol. v. pt. 1, 1911–12, published July, 1912, as well as in the 'Naturalist,' December, 1909, and April, 1910. I need not repeat what is there written, but give the names of the species as at present known. All four species of *Lumbricus* occur: (1) *L. terrestris*, (2) *L. rubellus*, (3) *L. festivus*, and (4) *L. castaneus*. Also the square tail (5) *Allurus tetrædrus*. Among the Allolobophoras we find (6) *A. longa*, (7) *A. trapezoides*, (8) *A. turgida*, (9) *A. chlorotica*, (10) *Eisenia fetida*, (11) *E. rosea*,

and two very fine forms of *E. veneta* found in gardens at Malvern, but as yet unknown elsewhere, which I have named (12) *E. robusta* and (13) *E. dendroidea*. Then among the Dendrobenes we find (14) *D. subrubicunda*, (15) *D. arborea*, (16) *D. mammalis*, and (17) *D. constricta*. Further (18) *O. studiosum* (= *cyaneum*) and (19) *O. profugum* are present; and (20) *Helodrilus oculatus*. This curious worm was unknown in England till I found it in Malvern, but it has since been discovered by me in Derbyshire, Notts, Middlesex, Sussex, and elsewhere. Mr. Evans has taken it near Edinburgh, and during the month of March last I collected it at Swords and by the Dodder, in Dublin. In addition, I find (21) *Bimastus eiseni* on the golf links at Malvern, and in the Museum at Worcester are specimens of another terrestrial annelid which is still a mystery.

44. YORKSHIRE.—Many papers on Yorkshire annelids have appeared from my pen during the past twenty years in the 'Naturalist,' the 'Bradford Scientific Journal,' and elsewhere. While living at Idle I discovered *Lumbricus rubescens*, and found afterwards that it was a long-lost worm, formerly known as (1) *L. festivus*. Also common were (2) *L. terrestris*, (3) *L. rubellus*, and (4) *L. castaneus*. July 7th, 1891, is the date attached to notes on worms from Bolton Abbey and the Strid. In addition to the foregoing were (5) *E. rosea* (= *A. mucosa*), and that very rare worm (6) *A. bæckii*, which I found later near Woodhouse Grove. At Esholt *L. rubellus*, (7) *D. mammalis*, (8) *Allurus tetrædrus*, the Brandling (9) *Eisenia fætida*, and the Gilt-tail (10) *D. subrubicunda* were found; while (11) *O. profugum* was common around Apperley Bridge and Idle. Further, I found in and around this district, with Idle as the centre, (12) *B. eisenia*, (13) *Dendrobæna arborea*, and (14) *D. constricta*. (15) *A. longa* is common in the county, and at Haighbeck I found, on May 10th, 1892, with several of the foregoing *D. mammalis*. Lastly, while at Bridlington in the Easter of 1910, I found (16) *Octolasmium gracile*, which I think completes the list for the county, and closes the present record for England. Wales, Ireland, and Scotland remain for treatment; but it may be remarked that Mr. W. Evans has dealt with the latter in part, and Mr. Southerns with the Irish records somewhat fully.

(To be continued.)

NOTES AND QUERIES.

MAMMALIA.

The Hedgehog in the West of Scotland.—Lest it may lead to future confusion, may I point out that my Loch Maree record of a Hedgehog ('Zoologist,' *ante* p. 75) was in 1887—on April 13th—not 1888, as, owing to a slip of the pen, twice quoted by Mr. Harvie-Brown in his interesting remarks on the animal's distribution in the 'Zoologist' for the present month. As the locality is on the west of the backbone of Scotland, I may add that a friend has just told me that upwards of seventeen years ago, previous to which he resided at Dunure, in Ayrshire, he was accustomed to see a few Hedgehogs killed by the keeper in that district every year. He adds that he thinks "the damp climate of the Western Highlands may have something to do with the comparative scarcity of the animal on that side of Scotland."—GEORGE BOLAM.

MR. HARVIE-BROWN asks for "records" (*ante*, p. 107), and the following extract from my note-book may be of use, *viz.*—"June 30th, 1901, Ardbhan Craigs, Oban; Hedgehog seen and handled on the grassy tops not far from Pulpit Hill—seemed very torpid or indolent."—HUGH BOYD WATT (77, Parliament Hill, Hampstead, N.W.).

The Marten in Lincolnshire.—In reference to the note on this now rare animal by the Rev. F. L. Blathwayt in 'Zoologist' (*ante*, p. 107) may I say that in September, 1909, I saw a stuffed specimen in the possession of Mr. George Frudd, of Sleaford, killed in that locality "some years ago" (I have no more definite information regarding it), and was informed by that gentleman that he thought he had seen one at large there only a few years previously to 1909. Nothing more was heard of it, but it seems almost impossible that any other wild animal could have been mistaken for a Marten at comparatively close quarters.—GEORGE BOLAM.

A V E S.

Occurrence of Greenland Falcon in Co. Mayo.—On the 2nd inst. a very fine specimen of a female Greenland Falcon was shot by a young lady on the Island of Bartragh, Killala Bay. She first

observed the Falcon making savage swoops at the Lapwings nesting on the marsh at the foot of the sandhills, and seeing it was a bird unknown to her, she followed it among the sandhills until it settled on a little hillock, and, managing to get a long shot, knocked it over dead, very little injured by the shot. This is only the second specimen obtained in the Killala district. The first specimen was shot by a young farmer near the town of Killala, April 3rd, 1875, and was given to the late Col. Knox, of Castlerea, who sent the specimen to his brother, the late A. E. Knox, author of 'Ornithological Rambles in Sussex.'—ROBERT WARREN (Ardnaree, Monkstown, Co. Cork).

Ivory Gull (*Pagophila eburnea*) in Ireland.—An immature Ivory Gull (female), in handsome plumage, was shot on March 25th at Teelin Pier, Carrick, Co. Donegal, and forwarded to me in the flesh. This is the fifth recorded occurrence of this rare Arctic visitor to Ireland.—RICHARD M. BARRINGTON.

Asiatic Birds in Leadenhall Market.—I am informed that about twelve years ago a large number of Pallas's Sand-Grouse were brought frozen to this country. This interesting experiment has been repeated, and during the past few days several of the Leadenhall shops have been selling *Syrrhaptes paradoxus* at fifteen-pence apiece. The birds are almost all in excellent condition, and of course perfectly fresh. Those I have examined appear to have been shot, and not trapped or netted. My colleague, Mr. P. W. Horn, found in one of the Manchurian ducks mentioned below a number of rude iron pellets, ranging in size from that of 5's shot to that of pigeon peas. An engineering friend tells me these appear to be very impure metal, and possibly the pellets are a waste product of native iron moulders.

The Sand-Grouse are accompanied by many Bearded Partridges (*Perdix daurica*), a Manchurian form easily distinguished by the soft owl-like plumage, black horseshoe, and bright golden breast—the last a noticeable feature as the birds lie displayed in rows on the stalls. This species occurred in the Manchester Market about 1900, under the name of "Hungarian Partridge." A series of frozen ducks chosen from one of these Eastern consignments and sent to me for identification last week included an adult male Gadwell (*Chaulilasmus streperus*), Long-tailed Duck (*Harelda glacialis*), Goldeneye (*Clangula glauclion*), an immature Tufted Duck (*Fuligula fuligula*), Smew (*Mergus albellus*), and male and female Baer's Pochard (*Nyroca baeri*), recognized immediately by the green or greenish head and small but conspicuous chin spot.

In 1910, from a large Chinese consignment, I secured beautiful specimens of the Baikal Teal (*Nettion formosa*) and the Falcate Duck (*Eunetta falcata*), both of which were very numerous ; and with them I noticed dozens of the small eastern Bustard, *Otis dybowskii*, Tacz., *Gallinago stenura*, and one or two other Asiatic species, together with the usual Palæarctic *Anatidæ*.

Perhaps the most curious find was that of the West Australian *Anthocæra* (or *Acanthocæra*) *carunculata*—one of the “Wattle Birds”—picked from amongst frozen rabbits by Mr. Horn, and mounted for our museum ; and in December, 1909, a magnificent example of a large Albatross (*Diomedea exulans*, I judged it to be; it had little or no buff about the head) hung for some days amongst the Turkeys before a Leadenhall game-dealer’s shop front. When I saw it the bird appeared quite fresh, and bright red blood was dripping from its beak.

In past years large quantities of American game-birds and wild-fowl were sold fresh in the Manchester Market, and many of these passed through the accomplished hands of the Messrs. J. Holland, Wright Johnson, and J. Barlow. This note may perhaps be useful in connection with the mystery of admirably mounted Prairie Hens or Hooded Mergansers found in collections of Lancashire birds ; but it is now a long time since I saw an American complexion on a game-dealer’s stock-in-trade, and perhaps this Transatlantic traffic has ceased. I have seen Waxwings, Pine Grosbeaks, Scarlet Bull-finches, Crossbills, and other northern forms in great quantities in the Manchester Market. This wholesale slaughter of bright-plumaged Continental birds for mere vulgar display is not so common as formerly, but occasional Eagle and Snowy Owls, Avocets, Bitterns, Spoonbills, and similar creatures are still used as ornaments at Leadenhall, and sometimes one notices less striking but more interesting examples of “rare” birds. Some of these, one cannot help suspecting, travel by sinister courses to unquestioning hands, for frozen birds stand transport and handling remarkably well.—FREDERICK J. STUBBS (Stepney Borough Museums).

P.S.—Since the above note was written I have received from a Leadenhall dealer a bird picked out of a lot of Black Grouse. It is an immature Little Bustard (*Tetrax tetrax*), with a culmen of no more than .9 of an inch. I am assured that it is from Northern Europe, but of course the species is best known as a southern bird.—F. J. S.

NOTICES OF NEW BOOKS.

Practical Bird-Keeping ; being Reprints of Articles which have appeared in the 'Avicultural Magazine.' Edited by J. LEWIS BONHOTE, M.A., &c. West, Newman & Co.

BIRDS in captivity are fortunately now more seldom dismal prisoners confined in wretched cages. The aviculturist of to-day is usually an ornithologist, who not only studies the habits of his pensioners, but strives more or less to produce an environment suitable to their health and happiness. Many exotic birds which formerly were only found in the aviaries of zoological gardens or in the possession of wealthy amateurs now thrive in the capacious and suitable enclosures of private aviculturists, and our excellent contemporary, the 'Avicultural Magazine,' is to be credited with not only fostering the study, but also improving the conditions and making possible the successful keeping of almost any bird that can be procured. This small book is, therefore, to be welcomed as a reprint long desired, and should prove a safe guide to those who follow the pursuit and study.

The articles reproduced are written by experienced aviculturists whose names are not unknown, and some are specialists in the birds they keep and often breed. In all the contributions there is an excellent endeavour to describe the natural environment of the bird, and to suggest its artificial reproduction, while the dietary information is full and complete. The modern study of "bird-watching" in nature has done much to give us new and unexpected information in avian bionomics, and is still only in its infancy ; the real aviculturist, in his observations, is also adding to our knowledge in the questions of longevity, changes in plumage, and even episodes in courtship, so that aviculture is no longer the definition of a hobby, but represents a distinct section in the study of ornithology. Aviculture has had to fight for its scientific recognition, and the journal from which these articles are reproduced is fast becoming, if it has not already reached the status of, an indispensable magazine in ornithological bionomics.

The book is well illustrated.

EDITORIAL GLEANINGS.

ENEMIES OF TOADS.—“The Rev. H. Marmaduke Langdale writes (April 17th, 1889):—‘A curious circumstance came under my notice yesterday, which I think may be of interest to you, though it does not touch on bird-life. Toads are particular favourites of mine, and I have always upheld their usefulness and harmlessness, deplored the cruelty which often dictates their death. Till yesterday, however, I left out one from the list of their enemies. There is something about a toad which makes all animals shy of touching one with the mouth. Nature has provided the defenceless thing with a bitter juice, which can be expelled, like perspiration, from the pores of the skin, when it is being handled or used roughly. This juice makes dogs foam at the mouth when they can be excited sufficiently to seize a toad, and doubtless the same reason frees them from the persecution which sweeter tasted morsels suffer from the jaws of various vermin. Now, hard by this village (Compton), where some bricklayers are erecting outbuildings, there is a pond in a sequestered valley, surrounded with long grass, and shaded by the boughs of mighty elms, which hitherto has afforded a peaceful retreat to toads at this time of year, when they resort thereto and deposit their long bead-like strings of spawn. The building operations upset the programme sadly, however, for the lime imparted to the water from the dipment of mortar-covered buckets drove all the squamous inhabitants into the surrounding grass. Hard by, a mighty heap of turf affords asylum to a colony of rats, and these gentry sallied out at dead of night, fell upon the evicted toads, and rent them in pieces, eating portions of their flesh and dragging away the carcases to their earthy fortress, the whole community thus coming to a fearful end. This little episode struck me as most unusual, and I made up my mind to ask you if any similar occurrence had ever come under your notice. Rats are truly regarded as omnivorous.’ Under stress of hunger any creature will devour any strange flesh, as wolf eats wolf, and it is possible that the rats did not want ‘Home Rule’ for themselves so much as to stay the pinch of hunger even with a toad. This letter of Mr. Langdale’s, whose powers of observation and humorous description are here well exemplified, would have been welcome to Mr. Frank Buckland, to whom rats were special favourites. He describes the elephant at

Clifton, whose feet were gnawed into holes by rats, the grisly portion being completely eaten away while she was asleep, but whose life was saved by removal from the rats. Mr. Buckland was very fond of trying experiments of what he called 'the law of eat and be eaten.' He tried a hedgehog with a viper. The viper struck the hedgehog two or three times in the face, where there are no bristles. Meanwhile the hedgehog munched up the viper's tail. The hedgehog did not suffer in the least; on the contrary, he ate up the viper in the course of the night, not leaving a trace of him. A gentleman of highest repute for biology in Oxford, who is at the present time Acting Professor, comments thus on Mr. Langdale's letter:—'Bell's British Quadrupeds, 2nd edition, has no mention of any such fact. Rats are very destructive to eggs and young animals. They have been known to exterminate rabbits and puffins on an island, and they have even under force of hunger slain men. The hedgehog habitually eats toads, among other things. Dogs, of course, find the skin secretion very disagreeable. The secretion of the glands, especially about the head in salamanders, causes epileptiform convulsions when injected into the blood of small animals. The toad's secretion is poisonous to a less degree.'"—'West Sussex Gazette,' May 9th, 1889. "Selborne Column," conducted by the Rev. H. D. Gordon.

[The above is interesting in connection with the question on the subject asked by Mr. J. Steele Elliott (Zool. 1912, p. 234).—ED.]

